

Application No. 09/720,576
Amdt. dated September 9, 2003
Reply to Office Action of April 9, 2003

IN THE CLAIMS:

Please replace claims 3-8 and 11 with the following clean version of amended claims 3-8 and 11:

1. (withdrawn) A workpiece support apparatus for centerless grinding, comprising:

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- a carriage having an edge;
- a rotatable spindle extending through the carriage and having an extending portion, the extending portion extending beyond the edge of the carriage;
- a regulating roller mounted on the extending portion of the spindle, the regulating roller for supporting and rotating the workpiece;
- a wheel dressing roller having a polishing outer surface and being mounted on the extending portion of the spindle distal of the carriage relative to the regulating roller; and
- means for rotating the spindle which thereby rotates the regulating roller and the wheel dressing roller.

2. (withdrawn) The support apparatus according to claim 1, wherein the wheel dressing roller has an outer diameter which is less than the outer diameter of the regulating roller.

3. (currently amended) A computer program in combination with a computer and a rotational grinding apparatus having a grinding wheel, a blade and a regulating roller for enabling a user through a user interface to control the rotational grinding apparatus to dress at least one of the grinding wheel, the blade, and the regulating roller by using a wheel dressing roller supported on a spindle, comprising:

means for displaying a computer screen template having various at least one numerical data input value display windows window on the screen, said template including at least one data input value display window, wherein the value displayed in the at least one numerical data

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input value display window ~~corresponding~~ corresponds to a numerically controlled pattern of dressing, and wherein said pattern of dressing ~~being~~ is variable by changing the value in the display window;

means for accepting a value from the user and displaying the value in the value display window;

whereby selecting a value in the at least one value display windows window automatically directs the computer program to write a new computer program to control the grinding apparatus to in-situ dress at least one of the grinding wheel, the blade and the regulating roller in a desired configuration.

4. (currently amended) The program according to claim 3, further comprising a means for changing the value in the at least one numerical data input value display windows window to increase or decrease the values displayed ~~in the value windows~~ by using a mouse to scroll up and down a value list.

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6. (currently amended) A computer program in combination with a computer and a rotational grinding apparatus having a grinding wheel, a blade and a regulating roller for enabling a user through a user interface to control the rotational grinding apparatus to dress the regulating roller, comprising:

means for displaying a computer screen ~~template~~ having various at least one numerical data input value display windows window, ~~said template including at least one data input value display window~~, wherein the value displayed in the value display window ~~corresponding~~ corresponds to a numerically controlled pattern of regulator dressing, and wherein said pattern of dressing ~~being~~ is variable by changing the value in the display window relating to a variable in the process of dressing the regulating roller;

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means for accepting a value from the user and displaying the value in the value display window;

whereby selecting various numerical data input values in the value display windows automatically directs the computer to write a new computer program to control the grinding apparatus to in-situ dress the regulating roller in a desired configuration.

7. (previously presented) The program according to claim 6, further comprising means for changing the value in the value display window to either increase or decrease the values.

8. (previously presented) The program according to claim 6, further comprising means for enabling modification of the accepted value.

9. (withdrawn) A grinding apparatus capable of dressing a grinding wheel using a computer system having a user interface, the apparatus comprising:

a user interface including a means for data input and a monitor;

an input/output (I/O) interface board electronically connected to the user interface;

a data processor electronically connected to the I/O board;

a motion controller electronically connected to the I/O board;

a y-axis drive unit electronically connected to the motion controller;

a z-axis drive unit electronically connected to the motion controller;

a y-axis motor electronically connected to the y-axis drive unit;

a z-axis motor electronically connected to the z-axis drive unit;

a grinding wheel;

a rotatable wheel dressing roller;

the combination of the grinding wheel and the wheel dressing roller being connected to the y-axis motor and the z-axis motor such that the y- and z-axis motors can cause the

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grinding wheel and the wheel dressing roller to contact each other so that when the grinding wheel and the wheel dressing roller are rotating, the wheel dressing roller will smooth the surface of the grinding wheel,

the data processor for controlling the y-axis motor to control the depth of grinding and for controlling the x-axis to control the grinding wheel and the wheel dressing roller to sweep past one another longitudinally.

10. (withdrawn) A centerless grinding apparatus capable of dressing a regulating roller using a computer system having a user interface, the apparatus comprising:

a user interface including a means for data input and a monitor;
an input/output (I/O) interface board electronically connected to the user interface;

a data processor electronically connected to the I/O board;
a motion controller electronically connected to the I/O board;
a y-axis drive unit electronically connected to the motion controller;
a z-axis drive unit electronically connected to the motion controller;
a y-axis motor electronically connected to the y-axis drive unit;
a z-axis motor electronically connected to the z-axis drive unit;
a grinding wheel;
a regulating roller;

the combination of the grinding wheel and the regulating roller being connected to the y-axis motor and the z-axis motor such that the y- and z-axis motors can cause the grinding wheel and the regulating roller to contact each other so that when the grinding wheel and the regulating roller are rotating, the grinder wheel will smooth the surface of the regulating roller,

the data processor being designed for controlling the y-axis motor to control the depth of grinding and for controlling the x-axis to control the grinding wheel and the regulating roller to sweep past one another longitudinally.

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11. (currently amended) A computer system with a computer screen for enabling the creation of a new computer program by a user ~~using~~ utilizing display monitor value display windows on the computer screen, the computer program ~~to control~~ being adapted and created for controlling a rotational grinding apparatus, the computer system also for compiling data so that the rotational grinding apparatus performs as the user specifies, the computer system comprising:

means for displaying a computer program screen form having at least one numerical data input value display window on the computer screen which relates to a numerical variable in the process of grinding with a rotational grinding apparatus;

means for accepting a numerical value from the user and displaying the numerical value in the value display window;

means for sending the accepted value to a computer program for operating the grinding apparatus; and

means for creating a new computer program from the previous computer program containing the accepted value such that the computer program controls the grinding apparatus in a desired manner reflecting the numerical values entered into the value display windows.